Claims

1. A method for the three-dimensional measurement of objects in which a measuring element (14; 52) is moved in space relative to an object to be measured, in particular along its surface, the locations of the measuring element (14; 52) are determined relative to a reference system, in particular relative to a fixed reference system, and the dimensions of the object (24; 56) examined are determined from the detected locations of the measuring element (14; 52),
characterized in that
the locations of the measuring element (14; 52) are determined by a locating method with reference to a reference system fixed by the associated locating system (16) and desired dimensions of the object (24; 56) are calculated from the locations of the measuring element (14; 52) determined in this manner.

2. A method in accordance with claim 1, characterized in that at least one physical field, in particular an acoustic, optical and/or electromagnetic field, can be set up for the location of the measuring element (14; 52).

3. A method in accordance with claim 1 or claim 2, characterized in that a unidirectional locating system (16), in particular in the manner of the so-called global positioning system, GPS, is used for the locating of the measuring element (14; 52).

system fixed by the locating system (16) and in that means (18) are provided for the calculation of object dimensions from the locations determined in this manner.

15. An apparatus in accordance with claim 14, characterized in that the locating system (16) has at least one means (16) for the setting up of a physical field, in particular of an acoustic, optical and/or electromagnetic field.

16. An apparatus in accordance with claim 14 or claim 15, characterized in that the locating system (16) is made as a unidirectional locating system (16), in particular in the manner of the so-called global positioning system, GPS.

17. An apparatus in accordance with any one of the claims 14 to 16, characterized in that the measuring element (14; 52) is made as a mechanical or contact-free scanning element.

18. An apparatus in accordance with any one of the claims 14 to 17, characterized in that the measuring element (14; 52) is arranged at a robot arm (26).

19. An apparatus in accordance with claim 18, characterized in that the robot arm (26) has a gripping element (30) for the gripping of the measuring element (14; 52) and/or of the object (24; 56) and is made to move the measuring element (14; 52) between pick-up and put-down positions and the measuring position.

4. A method in accordance with any one of the preceding claims, characterized in that the measuring element (14; 52) scans the object (24; 56) mechanically or in a contact-free manner.

5. A method in accordance with any one of the preceding claims, characterized in that the measuring element (14; 52) is moved by a robot arm (26).

6. A method in accordance with any one of the preceding claims, characterized in that the robot arm (26) is simultaneously used for the movement of the object, in particular for the loading and/or unloading of the measuring apparatus.

7. A method in accordance with any one of the preceding claims, characterized in that the measuring element (14; 52) is moved by a flying object (50).

8. A method in accordance with any one of the preceding claims, characterized in that at least one exchangeable measuring element (14: 52) is used.

9. A method in accordance with any one of the preceding claims, characterized in that the locating system (16) is calibrated by self-calibration.

10. A method in accordance with any one of the preceding claims, characterized in that the measuring element (14; 52) is supplied with

energy in a wireless manner, in particular inductively or by means of an accumulator.

11. A method in accordance with any one of the preceding claims, characterized in that the measurement data of the measuring element (14; 52) are transmitted in a wireless manner, in particular inductively or by radio.

12. A method in accordance with any one of the preceding claims, characterized in that the object (24; 56) is positioned at a zero position for the measurement.

13. A method in accordance with any one of the preceding claims, characterized in that the object (24; 56) to be measured is measured in accordance with a grid, in particular with an asymmetrical grid.

14. An apparatus for the three-dimensional measurement of objects comprising
a measuring element (14; 52) movable in space relative to an object to be measured, in particular along its surface;
means for the determination of the location of the measuring element (14; 52) at the measuring positions relative to a reference system, in particular relative to a fixed reference system, and means for the determination of the dimensions of the object (24; 56) from the detected locations of the measuring element (14; 52),
characterized in that
a locating system (16) is provided for the determination of the location of the measuring element (14; 52) with reference to the reference

20. An apparatus in accordance with any one of the claims 14 to 17, characterized in that the measuring element (14; 52) is arranged at a flying object (50).

21. An apparatus in accordance with any one of the claims 14 to 20, characterized in that the measuring element (14; 52) is exchangeable.

22. An apparatus in accordance with any one of the claims 14 to 21, characterized in that means are provided for the self-calibration of the locating system.

23. An apparatus in accordance with any one of the claims 14 to 22, characterized in that means (28) are provided for the wireless energy supply of the measuring element (14; 52), in particular means for the inductive energy supply or an accumulator.

24. An apparatus in accordance with any one of the claims 14 to 23, characterized in that means are provided for the wireless transmission of the measured data, in particular means for inductive transmission or for transmission by radio.

25. An apparatus in accordance with any one of the claims 14 to 24, characterized in that a zero position is provided for the object (24; 56) to be measured.